THURSDAY, DECEMBER 17, 1914.

THE ROYAL SOCIETY OF ARTS.

A History of the Royal Society of Arts. By Sir Henry Trueman Wood. Pp. xvii+558. (London: John Murray, 1913.) Price 15*s.* net.

TO many who have attended meetings and lectures at the Royal Society of Arts during the last quarter of a century, or have been connected with its management, it will seem exceedingly appropriate that this history of the society since its inception in 1754 should have been written by Sir Henry Trueman Wood, its secretary since 1879, who, during all these latter years has been so intimately associated with all its activities that the society can scarcely be thought of by anyone without his well-known, tall, and spare figure appearing simultaneously to the mental eye.

To a large number of the public, and perhaps also to not a few members of the society itself, much of the information contained in this book will be something of a revelation. Few can know the early history of the society and the large amount of work that it performed during the latter half of the eighteenth century, while but a small number of its present-day members can be aware of its remarkable membership in early times. This included, among numerous and distinguished members of the peerage, a perfect medley of famous personages in various walks of life. For instance, we find among them Edward Gibbon, the historian of "The Decline and Fall"; Thomas Chippendale, of furniture fame; Benjamin Franklin, the distinguished American natural philosopher and politician; David Garrick, the actor; Oliver Goldsmith, the poet; Dr. Johnson, of dictionary fame; William Hogarth, the painter; Robert Adam, one of the two brothers who were the eminent architects who built the existing somewhat quaint and old-fashioned building in which the society still has its offices and holds its meetings; Sir Joshua Reynolds, first president of the Royal Academy; William Pitt, afterwards Earl of Chatham; and the notorious John Wilkes, to mention only a very few of those who are best known.

The society included in its membership all sorts and conditions of men, and interested itself in an extraordinary variety and multiplicity of matters. There does not seem to be much connection between mangold-wurzels, which the society appears to have introduced, harpoons, motive power, steel and gem engraving, naval construction, leadless glazes, medicinal plants, chimney sweeping or fire escapes, to mention just a few subjects taken at random from the long list that has been dealt with by the society at various times. Evidently the society, like Francis Bacon before it, took all knowledge for its province.

Especially interesting is the account of the large part played by the Society of Arts in the foundation of the great exhibitions of 1851 and 1862, and through these, as the author states, "of that long series of international exhibitions which have had such far-reaching influence on the arts, as well as on industry and trade."

Of great interest, also, is the chapter devoted to the society's medals, many of which are well illustrated, and, having been designed by Flaxman, the two Wyons, and other celebrated artists, are in themselves objects of beauty.

Some of the facts brought out as to various inventions are somewhat astonishing, as, for instance, that, until invented by Sturgeon—to whom the society granted in 1825 both a medal and a premium—the electromagnet, which to-day is so enormously employed in telegraphy and telephony and in almost every description of electrical plant, was unknown. Without this instrument practically no modern electrical development could have taken place. This is probably the most important invention that the society ever directly encouraged, for, as stated in the work under review, it is disappointing that the names of Watt, Crompton, Arkwright, and others are missing among those rewarded by the society.

The author says: "The best reason that can be suggested is that all these men were in advance of their time. Like all great inventors, they had to wait for recognition until they had overborne the opposition of ignorance and of rival interests, and it was then too late for prizes or contributions." Further, the society in its early years excluded all patented inventions from those eligible for premiums, continuing this practice up to about 1844, when wiser counsels prevailed and the rule was abandoned.

Another electrical contrivance of value, namely, the Smee galvanic battery, received in 1840 the reward of a gold medal, while in 1841 Robert Murray received a silver medal and 10*l.* for his invention of the now universally used method of obtaining a conducting surface for electro-deposition by means of plumbago. As recorded by Sir Henry Wood, however, perhaps in early days the society effected less by means of its medals and premiums than it did by its success in the starting of new movements. Allusion has already been made to its influence on the great exhibitions, but, as is pointed out by the author, the society also played a great part in regard to reform of the Patents Acts; in connection with artistic copyright; in the starting of mechanics' institutes

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throughout the country; in promoting technical education; in reference to national musical training; in regard to postal reforms; in the institution of public examinations for various purposes, and numerous other subjects of public interest.

In later years the "Cantor" and other lectures by eminent scientific men on all manner of subjects have more and more become one of the chief elements of the society's well-known usefulness.

This is made evident by the author, who also gives accounts of other of the society's manifold activities in various directions, which cannot here be mentioned for want of space.

It should be added that Lord Sanderson, G.C.B., chairman of the council of the society for the years 1911–1913, contributes an illuminating preface. A. A. CAMPBELL SWINTON.

HOUSEHOLD SCIENCE.

Physics of the Household. By Prof. C. J. Lynde. Pp. xi+313. (New York. The Macmillan Co.; London: Macmillan and Co., Ltd., 1914.) Price 5*s*. 6*d*. net.

THE author of this book is professor of physics in the Macdonald College, an affiliated college of the McGill University, Montreal, where a school of household science is one of the branches of the institution, and it is for students of household science that the book is written. It presents the subject of physics in close relation to its domestic applications, and abounds in illustrations and examples of household appliances and processes. It should be of great use to science teachers, especially those who have to teach girls, in reminding them of the range of familiar things and topics of physical interest that lie in the home environment, and that often lie unheeded and unexplained.

The suitability of the book for students themselves is, perhaps, more open to discussion, and it is more than likely that it will come under the censure of teachers who are wedded to the conventional form of text-book. The chief ground of attack would no doubt be that so far as the general principles of physical science are concerned, the elucidation is cramped and obscured by the weight of illustrations of their practical application. To treat the subjects of mechanics, heat, electricity and magnetism, light and sound and their applications in three hundred pages has led to a certain breathlessness of style, and some topics are treated very vaguely.

The gaps in the knowledge of those in control of the household that are the most conspicuous and seem to call most loudly for repair, do not relate so much to the design and principles of construction of appliances, as to the conduct of operations. An increased apprehension of the application of the lever principle or of the construction and *modus operandi* of an electric bell is all to the good, but it is not to be compared with a real live knowledge of the laws of heat and the capability of thinking and acting within them in the great field of household operations to which they apply. It is extraordinary to see the woodenness with which a woman armed with the conventional "heat" of the school or college text-book will face simple problems of heating or cooling as they arise in the household. This defect is not to be repaired merely by a rational account of the principles on which heating appliances are constructed. To instil real activity of mind it is necessary to teach in terms of problems with a wide range of experimental exercises.

For the reasons indicated above, it is fair to say that the value of Prof. Lynde's book to students must depend very largely on the laboratory work that accompanies it, and on the constant raising of questions and corollaries by the teacher. This, however, is true of most text-books, and it must not lead us to undervalue one that has so large an element of originality and is so likely to be useful. A. S.

HOG-SPEARS AND FISHING-RODS.

(1) *Modern Pig-Sticking.* By Major A. E. Wardrop. Pp. xii+304. (London: Macmillan and Co., Ltd., 1914.) Price 10*s*. net.

(2) *Fishing and Philandering.* By A. Mainwaring. Pp. 254. (London: Heath, Granton and Ouseley, Ltd., n.d.) Price 6*s*. net.

(1) WHAT fox-hunting is to England, pig-sticking is to India, with the difference that the latter has that spice of personal danger from attacks on the part of the quarry which, to the regret of many sportsmen, is entirely lacking in the former. Both, too, have nowadays this in common, namely, that in their headquarters they depend to a greater or less degree on protection for their quarry—a fact which may come as a surprise to those unacquainted with India at the present day, and the great diminution in the numbers of its big game which has taken place in many districts. The headquarters of pig-sticking are the "khadirs," or river-valleys, of the Ganges and Jumna in the respective districts of Meerut and Muttra; and to old Anglo-Indians who have ridden or shot in the khadir, Major Wardrop's gossipy book will come as a delightful reminiscence of bygone days. To the newcomer in India it will serve as an incentive to rival the deeds of his predecessors in one of the most noble and exciting of all field-sports.

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